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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,529	07/01/2004	Nobuo Sashinaka	MAT-8573US	6408
23122	7590	03/23/2006	EXAMINER	
RATNERPRESTIA P O BOX 980 VALLEY FORGE, PA 19482-0980			STAHL, MICHAEL J	
			ART UNIT	PAPER NUMBER
			2874	
DATE MAILED: 03/23/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/500,529

Applicant(s)

SASHINAKA ET AL.

Examiner

Mike Stahl

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 14, 16-23 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 12, 15, 24 and 28-31 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/1/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Claim Objections

Claim 15 is objected to because it appears to contradict parent claim 13. Claim 15 recites that there is a third step between the first step and the second step, whereas claim 13 recites that the second step is one level below the first step. It is not clear how there could be any steps between the first and second steps if the first and second steps are one level apart.

Claims 28 and 31 are both objected to because they appear to contradict common parent claim 25 in the same way that claim 15 does relative to claim 13 as described in the paragraph above.

Claims 29 and 30 are objected to by dependence from claim 28.

Since it is unclear what applicant intends by claims 15 and 28-31, these claims are not further considered with regard to the prior art in this Office action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-5, 7, 14, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Dautartas (US 5257336).

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Claim 1: Dautartas discloses an optical communication module including a light emitting or receiving device **18**; an optical transmission line **28** transmitting light to or from the device **18**; an optical component **20** optically coupling the device **18** and the optical transmission line **28**; and a substrate **12** on whose surface a cavity is formed, the cavity having a floor and at least one step, and the group of the device **18**, optical component **20**, and transmission line **28** being mounted on the cavity. See fig. 1.

Claim 4: The light-emitting device includes one of a light-emitting diode or a laser diode, and the light-receiving device includes a photodiode (col. 3 lns. 65-67).

Claim 5: The optical component **20** includes a refractive lens.

Claim 7: Element **38** is regarded as an optical iris (see e.g. figs. 2 or 6).

Claim 14: The transmission line is disposed separately from the optical component.

Claim 23: The Dautartas fig. 1 arrangement meets the limitations of this claim.

Claims 1-2, 4, 14, 21, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Beranek et al. (US 5896481).

Claim 1: Beranek discloses an optical communication module including a light emitting or receiving device **240**; an optical transmission line **220** transmitting light to or from the device **240**; an optical component (mirrored angled surface of groove **214** shown in fig. 3D) optically coupling the device **240** and the optical transmission line **220**; and a substrate **200** on whose surface a cavity (including sections **210/212/214** of fig. 3A/3B) is formed, the cavity having a floor and at least one step, and the group of the device **240**, optical component, and transmission line **220** being mounted on the cavity. See figs. 3A-3D.

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Claim 2: An optical axis of the device **240** and an optical axis of the optical component are matched by abutting the optical transmission line on the cavity.

Claim 4: The light-emitting device includes one of a light-emitting diode or a laser diode, and the light-receiving device includes a photodiode (col. 6 lns. 11-23).

Claim 14: The transmission line is disposed separately from the optical component.

Claim 21: The device **240** has a thickness equivalent to the height of the step one level above the floor of the cavity.

Claim 23: The Beranek arrangement described above meets the limitations of this claim.

Claims 1, 5-6, 8-11, 13, 16-17, 19-20, 23, and 25-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson (US 7004644).

Claim 1: Johnson discloses an optical communication module including a light emitting or receiving device **11** (or **12**), an optical transmission line **25** transmitting light to or from the device **11**; an optical component **13** optically coupling the device **11** and the optical transmission line **25**; and a substrate **15** on whose surface a cavity is formed, the cavity having a floor and at least one step, and the group of the device **11**, optical component **13**, and transmission line **25** being mounted on the cavity. See fig. 1a.

Claims 5-6: The optical component **13** includes a refractive or diffractive lens **58** (col. 2 lns. 25-27).

Claim 8: The optical component hermetically seals the device **11** (col. 2 lns. 13-20).

Claim 9: The optical component is hermetically sealed onto the cavity by solder **16**.

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Claim 10: The device **11** is disposed on the floor of the cavity, and the optical component **13** and transmission line **25** are disposed on the step of the cavity.

Claim 11: The cavity has at least one step and the optical component **13** and transmission line **25** are disposed on a first step.

Claim 13: In the related embodiment of fig. 3b, the cavity includes a plurality of steps, with a second step one level below a first step, the optical component **13** (**33** in this figure) is disposed on the second step, and the transmission line **25** is disposed on the first step.

Claim 16: A height of the second step exceeds the thickness of the optical component **33**.

Claim 17: An outline of the second step is larger than a core of the transmission line disposed on the first step.

Claim 19: The substrate **15** is a multilayer ceramic substrate having two more layers than cavity steps (fig. 1a).

Claim 20: The floor of the cavity includes a ceramic layer. Although firing of powder is a well known and conventional way of making ceramic layers, that limitation is not being given patentable weight since it is a product-by-process limitation and does not define any structural distinction.

Claim 23: The Johnson arrangement described above meets the limitations of this claim.

Claims 25-27: See above with regard to claims 13, 16 and 17 respectively.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dautartas (US 5257336).

Dautartas does not specifically teach that the fiber **28** is a plastic fiber or a plastic-clad fiber. Both types of fibers are already well known in the art. It would have been obvious to a skilled person to use a plastic fiber in the Dautartas arrangement since plastic fibers are known to be relatively inexpensive and the use of a plastic fiber would therefore support the reference's goal of producing a low cost optical device package (note e.g. col. 1 lns. 18-22 and 57-60).

Claims 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beranek et al. (US 5896481).

Claim 18: Beranek does not specifically disclose a plurality of optical components. Light emitting or receiving devices are commonly provided with a built-in lens in order to improve their light coupling efficiency. Accordingly, it would have been obvious to a skilled person to use a device having a built-in lens as the device **240** in the Beranek arrangement in order to optimize the amount of light coupled into or received from fiber **220**. Figs. 3A-3B show three steps. The lens added by the proposed modification would constitute a second optical component beyond the optical component indicated above with regard to parent claim 1.

Claim 22: Beranek does not specifically disclose a semiconductor device mounted on the substrate **200** for controlling the device **240**. Such control devices are well known in the art, for example, driver circuitry for light emitters or amplifier circuitry for light receivers. It would have been obvious to a skilled person to provide a semiconductor device on the substrate **200** for controlling device **240** since it could thereby be readily electrically connected to device **240** via traces **242/244**.

Allowable Subject Matter

Claims 12 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Both claims require that the outline of the transmission line, the outline of the step where the transmission line is disposed, and the outline of the optical component are all the same.

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'Same outline' is understood to mean that both the peripheral shape and the peripheral size must be the same. None of the art of record teaches or suggests an optical communications module or substrate which has this feature in combination with the limitations of respective parent claims 1 and 23.


Conclusion

The additional references listed on the attached PTO-892 form are considered relevant to the subject matter of this application.

Inquiries about this letter should be directed to Mike Stahl at 571-272-2360. Inquiries of a general or clerical nature (e.g., a request for a missing form or paper, etc.) should be directed to the technical support staff supervisor at 571-272-1626. Official correspondence which is eligible for submission by facsimile and which pertains to this application may be faxed to 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions about the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Stahl *MJS*
Patent Examiner
Art Unit 2874

March 16, 2006


SUNG PAK
PRIMARY EXAMINER